



VERTIV™

IT INFRASTRUCTURE SOLUTIONS

Enabling the Vital Applications
of the Digital World



CONVERGED SOLUTIONS

FOR NETWORK EDGE & CONVERGED SYSTEM DEPLOYMENTS

Rapidly deploy and manage IT infrastructure in just weeks without building new data center space. Our Smart Solutions products help you meet your IT needs with significant savings. With simplified, standardized designs, you can start small and expand over time.



Smart Mini 12RU + Smart MiDi 24RU + Smart Max 42 RU

Features:

- Plug-and-play self-contained data centre in a box
- Easy installation and can be operational on day one
- Centralised monitoring system
- Scalable to meet additional capacity requirements
- Standardised design for ease of deployment
- Optimised and factory-tested facility infrastructure components

SmartCabinet™

Features:

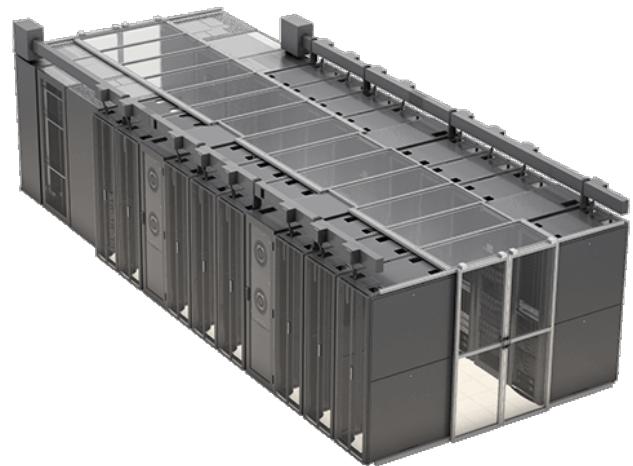
- Plug-and-play and ready to use from day one
- No dedicated IT room required
- Dust protection and noise insulation
- Built-in high efficiency UPS and cooling equipment that uses DC frequency conversion technology for energy savings
- Large 7-inch LCD touch panel allows easy access to system status/alarms/setting
- Water leak sensor provides additional security for critical IT equipment



SmartRow™ Plus

Features:

- Lower preventative maintenance costs
- Optimize space efficiency
- Reduce time and cost of implementation
- Streamline and centralize monitoring and management
- Up to 27% savings through high efficiency power, cooling and management technologies and containment
- Increases IT control and productivity by offering integrated DCIM technologies



Smart Aisle

Features:

- Lowest Total Cost of Ownership Increase of 30+% cooling efficiency Utilize existing cooling system.
- Payback within a few months to less than two years Low initial investment.
- Compatible with Vertiv racks, and racks by other manufacturers.
- Variable standard components interchangeable to create custom solutions.
- 25+% increase in available cooling capacity by implementing aisle containment.
- Interoperable with SmartAisle solutions for greater infrastructure visibility.

UNINTERRUPTIBLE POWER SUPPLIES

We take a holistic approach to power efficiency and availability across the power spectrum. Using our solutions, companies can overcome challenges to developing, deploying and managing power regardless of industry.

Liebert® PSA (500, 650, 1000, 1500VA)

Line-Interactive UPS



Features and Benefits

- Boost and buck AVR to stabilize the input voltage
- Three to six battery-backed UPS outlets, depending on model size
- One to two surge-only outlets, differentiated by color
- USB communications / shutdown software and cable included
- Up to five minutes of battery backup time of full load
- RJ-45 port for data line surge protection
- 2 years warranty

Runtime Chart (minutes)

Load (VA)	500VA	650VA	1000VA	1500VA
200	18	20	50	65
400	5	7	18	25
600	-	4	10	14
800	-	-	7	10
1000	-	-	4	7
1200	-	-	-	5
1400	-	-	-	4

Liebert® PSI (750, 1000, 1500, 2200, 3000VA)

Line-Interactive UPS



Features and Benefits

- More than three (3) mins of internal battery backup time at 100% load
- Buck / boost automatic voltage regulation
- High 0.9 power factor
- Liebert® Multilink software
- 8 to 9 battery-backed outlets
- Rack / tower convertible with rotatable display panel
- 2 years warranty

Runtime Chart (minutes)

Load (%)	750VA	1000VA	1500VA	2200VA	3000VA
10	84	93	76	82	76
20	45	47	32	44	32
30	25	26	17	19	17
40	15	15	12	14	12
50	11	12	9	11	9
60	9	9	7	9	7
70	7	7	5	7	5
80	5	6	4	5	4
90	4	5	3	4	3
100	4	4	3	3	3

Liebert® GXT MT+ (1kVA, 2kVA, 3kVA)

True On-line Double Conversion UPS



Features and Benefits

- Power factor 0.8
- Mini tower compact design
- Large LCD display for easy monitoring and operation
- Programmable outlets maximize battery runtime for critical load
- ECO mode for energy saving
- Double conversion on-line technology
- Long backup models suited for up to 8hrs of battery runtime
- Optional 8A external charger
- 2 years warranty

Runtime Chart (minutes)

Load (%)	1kVA	2kVA	3kVA
25	38	39	31
50	17	16	12
75	10	10	7
100	6	6	4

Liebert® GXT4 (700VA to 3kVA; 5kVA to 10kVA)

On-line UPS



Features and Benefits

- Intuitive Multi-Color LCD Screen
- Programmable outlets
- Active Eco-Mode
- Energy Star Certified
- Up to 6 external battery packs
- External battery packs
- Bundled rack rail kit (all models)



Runtime Chart (minutes)

Load (%)	700VA	1KVA	1.5KVA	2KVA	3KVA	5KVA	6KVA	10KVA
10	105	91	112	81	91	105	97	98
20	62	38	51	37	39	52	47	42
30	37	31	34	23	23	40	33	25
40	32	23	23	16	16	27	22	17
50	27	17	18	12	12	21	17	12
60	22	14	14	9	9	17	14	9
70	18	11	11	7	7	14	11	7
80	15	9	9	5	5	12	9	6
90	13	8	7	4	4	10	8	5
100	11	6	6	3	3	9	6	4

External batteries available

Liebert® ITA (6KVA [PF0.8], 10KVA, 16KVA, 20KVA)

True On-line Double Conversion UPS



Features and Benefits

- Power factor 0.9*
- Supports parallel operation up to 4 units (3+1)
- Adaptable to 3-phase or 1-phase voltages
- Backup time prolonged through cascaded connection or large capacity battery bank
- 92%-94% efficiency
- All ITA models are now 2-years standard warranty
- LCD display

Runtime Chart (minutes)

Load (%)	5000VA	1000VA	1600VA	2000VA
20	60	60	90	60
40	25	25	35	25
60	13	13	18	13
80	8	8	12	8
100	5.5	5.5	8	5
# of battery cabinets	1	2	4	4

External batteries available
*0.8 output power factor for 6KVA model

Liebert® NXC (10kVA, 20kVA, 30kVA, 40kVA, 60kVA)

True On-line Double Conversion UPS



Features and Benefits

- 0.9 output power factor
- On-line Double conversion with high efficiency over 94%
- Integrated battery compartment capable of up to 60 mins. of integrated autonomy
- Easy site installation and configuration
- Ecomode efficiency up to 98%
- High capacity battery charger
 - 10-20kVA ~ 4.5kW
 - 30-40kVA ~ 6kW
 - 60kVA ~ 7.5kW
- Input/output and bypass circuit breakers
- Integrated manual bypass
- Integrated parallel load bus and synchronization port (LBS)

Autonomy time (in mins.)*

Internal Battery Configuration	10KVA	20KVA
1 x 32 x 9AH	8	n/a
2 x 32 x 9AH	23	8
3 x 32 x 9AH	42	15
4 x 32 x 9AH	57	23
Internal Battery Configuration	30KVA	40KVA
1 x 38 x 34AH	15	10

- *Notes:
- Longer back-up time is available. Please consult Vertiv representative for proper configuration.
 - Autonomy time is based on 100% load and 0.9 UPS Output Power Factor.
 - Condition applies.

Accessories

- Intellislot Webcard
- Rackmount Kit
- Liebert® MicroPOD
- Liebert® LTS
- Liebert® ACV
- Liebert Intellislot Web Card3
- DP801 SNMP Card
- AS/400 Card
- Maintenance Bypass Switch
- External Battery Cabinet
- SiteMonitor
- SNMP /SIC card
- RDU-SIC card
- Relay card

Shutdown & Monitoring Software

- Liebert® Multilink™ shutdown software (included with the Liebert® GXT4 UPS)
- ViewPower Shutdown Software
- Liebert® Nform™ monitoring software
- Trellis Power Insight

Liebert® APS

(18- 90kVA)



Features and Benefits

- True on-line double conversion UPS
- Transformer-free and transformer-based models
- User installable, hot-swappable capacity and battery modules
- Internal redundancy capability (N+2/20kVA)
- Industry-leading efficiency: 92% for transformer-free systems and up to 89.9% for transformer based systems.
- Scalability that allows you to cost-effectively add power capacity or battery modules as needed.
- Modular batteries, controls and power components to help reduce maintenance costs with user replacement.
- Module-level redundancy eliminates the expense of purchasing and planning for additional cabinets.
- Reduced installation time and cost because units are shipped pre-configured and factory tested, no need for on-site assembly.
- Integral battery monitoring with temperature compensated charging to prolong battery life and help reduce replacement costs.
- Reliability and Serviceability

POWER DISTRIBUTION UNITS

Your power distribution system impacts both availability and scalability. Our room, row and rack power distribution units give you the flexibility to adapt to changing environments. They also support monitoring to ensure availability and provide insight into energy use.

Basic PDU

Liebert® MPI

- Broad range of power distribution capacities
- Robust connectivity solutions package
- Designed to manage power from UPS to each computing and communications hardware
- Available in different power outputs, depending on technical parameter requirement
- Available in rackmount and zero-U form factors



Managed PDU

Liebert® MPH2

- Monitors electrical and environmental parameters with set threshold and alarm tools.
- Controls and manages individual receptacles and/or groups of loads and devices.
- Allows you to predict failing conditions before they occur and proactively manage connected equipment for maximum uptime.
- Energy and power metering to maximize the data center power and cooling infrastructure.
- Lowest power consumption of all switched rack PDU designs ensures lower operating costs for datacenter.
- Up to four MPH2™ rack PDUs may be interconnected as a Rack PDU Array™



Adaptive PDU

Liebert® MPX

- The Liebert® MPX is a modular PDU; input and output models can be flexibly configured as required
- Allows user to add individual hot-swappable modules for capacity as demand increases
- Controls and manages individual receptacles and or groups of loads and devices; shuts down non essential equipment during power outage
- Expanded branch overload protection, minimizes threat of cascading PDU overload
- Employs energy efficient receptacle control technology
- Output modules can be changed during running operation; no downtime



MONITORING, CONTROL AND MANAGEMENT

Our solutions provide comprehensive functionality, scalability and security across the facility. By expanding data access and analysis, we provide unprecedented insight which lowers costs and enables rich remote management while ensuring security.

Vertiv™ 18.5" Local Rack Access (LRA) Console



Features and Benefits

- **Widescreen:** 18.5" LED LCD panel with a 16:9 aspect ratio. Supports resolutions up to 1600x1200 at both full screen and aspect ratio
- **Form Factor:** Easy access in the 1U space. Detent lock engages when stowed in the rack. Room for KVM installation in the same 1U space
- **KVM Compatibility:** LRA Consoles are compatible with all Avocent® data center KVM switches
- **User Interface:** On-Screen menu has an intuitive design and can be accessed in 7 languages
- **Data Center Local Access:** Complete entry point to local servers when needed
- **Ease of use:** Full desktop style keyboard with number pad, touch pad and 2 USB 2.0 pass through ports
- **Environmentally responsible:** Low power usage during operation and standby
- **Global availability:** Certifications and keyboard language support.
- Integrated KVM switch options with 8- or 16-port, local and/or remote access to servers

Vertiv™ AV Series KVM Switch



Features and Benefits

- **Local Port:** Support for USB and/or PS/2 user keyboards and mice
- **Single Solution:** Support for USB, PS/2, Sun and serial target devices in a single solution
- **Graphical, Multilingual OSD:** Advanced, graphical OSD eases system configuration and server selection
- **Space-Saving:** CAT-5, thin cabling saves space in the rack and allows up to a 100-foot distance between the server and the switch
- **Intelligent Cabling:** Server interface modules and integrated access cables automatically assign and retain unique server names for each attached server
- **Powerful User Access Control:** An administrator can grant KVM access to only certain users. The administrator can also limit KVM access to only specific targets on the switch. The AV Series 2030 switch supports smart card/CAC authentication to target devices, enabling the extension of two-factor

Vertiv™ Universal Management Gateway



Features and Benefits

- Comprehensive DCIM platform in a single pane of glass
- Convenient single U chassis – reduced rack space and footprint
- Complete connectivity (IPMI, SNMP, OPC, Modbus, BACnet, Velocity)
- Physical sensor aggregation
- Easy installation across various remote access technologies
- Up to 40 simultaneous KVM sessions
- Up to 1024 service processors; wide variety of servers managed
- Up to 40 full auto-sensing ports
- KVM and SPM capability per port (using the UMIQ-V2)
- Data collection – up to 10,000 data points per minute
- Real-time information across IT and facilities

Avocent MergePoint Unity™ KVM over IP Switch



- Advanced Remote Management provides secure and remote, out-of-band connections directly to the physical KVM, USB and serial ports to complement existing in-band software management tools.
- Meet service level agreements and minimize downtime through a unified approach that provides IT administrators a faster method to diagnose, reconfigure or restore equipment.
- Virtual Media support enables USB media such as CD-ROMs, flash memory and external drives to be virtually attached to a remote server's USB port.
- CAC/Smart Card Support allows remote or local users to map a USB-based smart card reader to the attached servers and authenticate using their smart cards.
- FIPS 140-2 compliance: based on the FIPS 140-2 validated cryptographic modules (certificate number 1051).

Avocent HMX 5000/6000 High Performance KVM System



- Digital, IP-based solution that provides a highly flexible way to connect hundreds of users to thousands of servers and workstation equipment in a secure, real-time manner.
- Ideal for control rooms with real-time control with pixel perfect digital video, supporting resolutions up to 2560 x 1600 at 60Hz.
- Supports redundant network operation through units that automatically detect whether the network is in operation and automatically change to a second port when a failure is detected.
- Enables connection of USB devices from mice and keyboards through to graphics tablets and joysticks alongside mass storage devices.
- Remote maintenance and out-of-band BIOS level access with high video performance through Real VNC viewer.
- Easy centralized management with user rights and audit trails through the HMX Advanced Manager.

Avocent ACS 6000 Advanced Console Server



- Secure in-band and out-of-band remote access to console ports of servers, routers, switches, firewalls and serial power devices.
- Strong encryption with advanced security features to ensure proper access with comprehensive audit capability.
- High network availability with a single point of authentication, secure remote access either through the IP network or via an alternate out-of-band network access when the primary network is down.
- Serial access with Integrated Power Management using Liebert® Rack PDUs such as MPH2™, MPH™, and MPX™ as well as third-party power support.
- Centralized administration for access and control, with DSView™ 4.5 management software to give a single pane of glass to efficiently manage IT infrastructure.
- Provision ACS units in the network automatically without manual intervention through Zero Touch Provisioning.

Vertiv™ DSView™ Management Software



Features

- Secure, remote, centralized data centre management
- Multi-device support
- Virtual media support
- Integrated solution for KVM and power control
- Simple, fast and reliable user interface
- Access service processor managers
- Notifications
- Scheduling
- Multi-platform support
- Flexible authentication/access control
- System/User logs
- Selectable encryption modes

Vertiv™ Rack Power Manager



Features

- **Measure and Track Power Costs** – Calculates and compares cost across multiple levels (rack, row, data centres or companies) to track cost over a period of time and also to measure the impact of any consolidation or expansion projects
- **Review Historical Capacity and Consumption Reports** – Plan for future expansion or new facilities more accurately based on real historical data rather than faceplate ratings or best-guess scenarios which result in overbuilding and lead to inefficiencies
- **Protect Against Downtime** – Help get a total reading on power usage for the data centre and set a maximum threshold of power usage. Set alerts to know when the threshold is reached or exceeded and allow time to make changes before there are actual problems
- **Accurately Plan** – Help IT know what electrical infrastructure to build into a new location or disaster recovery site. The design can be based on actual historical data rather than faceplate ratings or best-guess scenarios which result in overbuilding and lead to hard-to-correct inefficiencies

Vertiv™ Data Centre Planner



Features

Inventory management

- Know the physical location and attributes of all the equipment in a data centre
- Search for assets by their characteristics and their physical location
- Reduce the amount of time required to complete mandatory audits
- Decrease unaligned inventory and avoid unnecessary maintenance costs

Configuration management

- Simplify planning and management with a complete model of the environment
- Improve communication with a single source of truth for facilities and IT
- Reduce mean time to repair

Capacity tracking

- Know the infrastructure capacities and align resources to meet the data centre requirements
- Right-size the infrastructure and decrease costs associated with over-provisioning and risks associated with under-provisioning

Reporting

- Improve decision-making with comprehensive analytics
- Gain detailed insight into the infrastructure status and equipment managed

Intuitive visual interface

- Enhance process efficiency and minimize system administration
- At-a-glance infrastructure status and predictive modeling

Trellis™ Power Insight Application



Features

- Monitor Liebert® UPS devices
- Provides real-time trending for critical UPS performance including voltage and current utilization.
- Simple and quick installation – operational in less than 15 minutes
- Easy to use application – graphically rich and easy to understand dashboard view
- Automated device discovery- fast deployment
- Automated actions - server shutdown management and email notifications
- Device management access – direct access to settings and device management tools
- Distributed architecture – manage multiple UPSs from a single or multiple locations

RDU-M



Features

- Offers a user-friendly GUI to set up and manage data center infrastructure appliances
- Real-time monitoring on environmental, power, cooling, and security in data center
- Video surveillance supports video recording/backup/replaying/picturecapturing/voice transmission/timed recording and recording action triggered by alarm
- Room access control management
- Relay actions triggered by alarm or events
- Alarm notification by Email, SMS
- Report and analysis on data center/device operation; PUE statistics

RDU-A G2



Features

The Liebert® RDU-A G2 allows data center

managers to perform the following operations through a secure web page:

- Monitoring of the health and status of the equipment
- Monitoring of environmental conditions i.e. temperature and humidity, leak and smoke.
- Monitor the improved communication speed in transmitting control or commands to the equipment and parameter setting
- Records Data and Logs of historical information of alarms and notifications

3rd Party Communications:

- SNMP
- Modbus 485
- Dry contacts
- Analog Signals

Shutdown & Monitoring Software

- Liebert® Multilink™ shutdown software (included with the Liebert® GXT4 UPS)
- ViewPower Shutdown Software
- Liebert® Nform™ monitoring software
- Trellis Power Insight

THERMAL MANAGEMENT

Intelligent, comprehensive approach to managing and controlling heat across your mission-critical facilities

Enclosure Cooling

Liebert® HPS



Features

- Efficient because of the effective air distribution reached through the displacement cooling concept
- Energy and space saving due to the high efficiency components and the compactness of the innovative freecooling version
- Extremely flexible due to the possibility of selecting among several versions

Benefits

- Can be configured depending on the main application drivers (noise level, environmental conditions range etc.) and the desired options (freecooling, emergency freecooling, heating etc.)

Room Cooling

Liebert® DM



Variants

- Air Cooled

Features

- Energy saving mode available
- Adapts to different environments
- Low mean time to repair (MTTR)
- Standard RS485 port for monitoring
- Ultra wide ambient temperature range and multi-condenser configuration
- High sensible heat ratio with scroll compressor technology

Rack Cooling

Liebert® CRV



Features

- Precision cooling and humidity control
- Installs within the row of racks
- Features variable speed EC plug fans and variable capacity digital scroll compressor
- Operates efficiently with Liebert® iCOM controls

Benefits

- Horizontal airflow cooling design is suitable for non-raised or raised floors
- Air, water, glycol and chilled water systems available
- Adjustable airflow baffles maximise cooling to rack equipment, allowing the system to be positioned within the row or at the end of the row
- Multiple units communicate with each other to improve system performance and reduce energy consumption
- Up to 10 racks per cooling unit may be monitored to improve system performance and report rack temperatures

RACKS

You want the optimum benefits of your investments. And you want to be prepared for the unknown and unexpected. Our rack and containment products deliver flexibility, adaptability and cost-effective solutions to your specific data center requirements.



Vertiv™ S-Series

Features

- Strong and durable solid frame that can hold up to 1,200KG static load
- 75% open high perforated doors for optimal air flow
- Convenient tool-less installation of cable and air flow management
- Seismic solution is available for critical application
- Fast deployment leveling feet
- 3 point swing lock

SERVICE

No two situations are alike. So whether you're looking for engineering, installation, project on-site operations management, preventive maintenance or energy-consumption monitoring, we offer a wide range of programs and services designed to meet your critical infrastructures support needs.



- Start up
- On-Site Labor
- Extended Warranty
- Preventive Maintenance
- Comprehensive Maintenance
- Data Centre Audit
- Battery Monitoring
- Remote Monitoring Service
- Power Assurance

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